## What is claimed is:

1. A method for the detection and evaluation of the light generated in a fluorescing specimen by a short pulse laser, comprising the steps of:

separately irradiating at least a first and a second fluorophore and/or a self-fluorescing specimen with different wavelengths;

recording specimen light in a wavelength-dependent manner with at least one nondescanned detector as reference spectrum; and

carrying out a separation into individual spectra during the irradiation of at least two fluorophores and/or self-fluorescing specimens simultaneously from the measured spectrum and the reference spectra through regression analysis.

- 2. The method according to claim 1, wherein the wavelength of the short pulse laser is changed continuously in at least one wavelength region.
- 3. The method according to claim 1, wherein at least a part of the specimen is scanned and a fluorescence image of the specimen or of a portion of the specimen is detected and stored for the respective adjusted wavelength.